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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,660

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Hideo Taka

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT

PAPER NUMBER

1786

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,660	<b>Applicant(s)</b> TAKA ET AL.	
	<b>Examiner</b> Marie R. Yamnitzky	<b>Art Unit</b> 1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>28 Dec 2006</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1786

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 11, 12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomiuchi et al. (GB 2 357 180 A).

See the entire document. In particular, see the abstract; page 3, last paragraph, through page 5, line 7; page 7, first two paragraphs; page 8, last paragraph, through page 12, third paragraph; and page 18, fifth paragraph.

Tomiuchi et al. disclose a fluorescent color conversion filter in which at least one organic fluorescent dye is enclosed by a cyclodextrin derivative. The composite of fluorescent dye enclosed by cyclodextrin derivative meets the limitations of present claims 1 and 4. The cyclodextrin derivative meets the limitations of a multi-branched structure compound as required

by the rejected claims and the organic fluorescent dye which is enclosed by the cyclodextrin derivative meets the limitations of a light emitting material per the rejected claims.

The composite of fluorescent dye enclosed by cyclodextrin derivative is formed by dissolving the fluorescent dye and cyclodextrin derivative in a solvent (e.g. see p. 12, third paragraph) per a method meeting the limitations of present claims 11, 12 and 15.

4. Claims 1, 4, 11, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawaguchi et al. (US 2004/0051781 A1).

Kawaguchi et al. disclose a “fluorescence-conversion-dye-dendrimer clathrate body” which meets the limitations of present claims 1 and 4, and is made by a method that meets the limitations of present claims 11, 12 and 15. For example, see paragraphs [0024]-[0033] and [0036].

5. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Bellmann et al. (US 2003/0068525 A1).

See the entire publication. In particular, see paragraphs [0002], [0005], [0021], [0026]-[0031], [0040]-[0060], [0071]-[0072] and [0134].

Bellmann et al. disclose various compounds that meet the limitations of a multi-branched structure compound per the present claims (e.g. see paragraphs [0047]-[0060]). Bellmann et al. disclose these compounds for use as an amorphous, non-polymeric, organic matrix, in combination with a light emitting material, to form the light emitting layer of an organic

electroluminescent device. The organic electroluminescent device comprises at least the light emitting layer disposed between a pair of electrodes (an anode and a cathode) as per present claim 6 and dependents. In the process of making the device, the components of the light emitting layer are combined in the form of a solution as per present claim 11 and dependents.

Bellmann et al. teach that the compounds used as the matrix material may have hole transporting properties as per present claims 2 and 13, or electron transporting properties as per present claims 3 and 14 (e.g. see paragraph [0043]). The exemplary structures taught in paragraphs [0047]-[0060] include some structures which inherently exhibit a positive hole transporting property and some structures which inherently exhibit an electron transporting property.

Exemplary light emitting materials include fluorescent compounds as per present claims 4 and 15 (e.g. Alq<sub>3</sub> and the lanthanide metal complexes taught in paragraph [0072]) and phosphorescent compounds as per present claims 5 and 16 (e.g. the cyclometallated iridium compounds taught in paragraph [0072]; paragraph [0045] also explicitly teaches “triplet emitters”, which is alternative terminology for phosphorescent compounds).

With respect to present claims 7-10, see paragraphs [0028]-[0029] for example.

6. Claims 1, 2, 4-6, 8-13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitano et al. (US 2004/0109955 A1).

See the entire publication. In particular, see paragraphs [0010]-[0016], [0089]-[0091], [0117]-[0118], [0136], [0139], [0186]-[0210] and [0282]-[0284].

Kitano et al. disclose polymer compounds for use in the light emitting layer of an organic light emitting device comprising at least an organic light emitting layer disposed between an anode and a cathode (e.g. see paragraph [0191]). Various polymer structures are disclosed within the scope of Kitano's formula (1) or formula (2) that meet the limitations of a multi-branched structure compound as required by the present claims. Kitano's polymer compounds are inherently capable of transporting holes, thus meeting the further limitations recited in present claims 2 and 13. The polymer may be mixed with a light emitting material, which may be a fluorescent compound as per present claims 4 and 15, or a phosphorescent compound as per present claims 5 and 16 (e.g. see paragraphs [0193]-[0200]).

Kitano's polymer compounds are taught as being soluble in various solvents, and a layer comprising the polymer may be formed by dissolving the polymer and any other desired components, such as light emitting material, in a solvent (e.g. see paragraphs [0139] and [0204]-[0205]).

With respect to present claims 8-10, see paragraph [0187] for example.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (US 2004/0109955 A1) as applied to claims 1, 2, 4-6, 8-13, 15 and 16 above, and for the further reasons set forth below.

With respect to present claim 7, Kitano et al. do not explicitly teach a device emitting white light, but teach that the light emitting device may be used for various purposes such as a “back light of a liquid crystal display, a light source of curved or flat surface for lighting” (paragraph [0187]). These are purposes for which a device emitting white light would be desirable. Further, Kitano et al. teach various light emitting materials that may be used in combination with Kitano’s polymer in the light emitting layer of the device, and it was well-known in the art at the time of the invention that white light emission can be achieved by selective combination of different light emitting materials in a single layer, or by providing a device with multiple light emitting layers which, in combination, are capable of providing white light emission. It would have been within the level of ordinary skill of a worker in the art to provide a white light emitting device utilizing Kitano’s multi-branched polymer structure in combination with one or more light emitting materials, and one of ordinary skill in the art would have been motivated to do so when the device was intended to be used for a purpose in which white light emission was desirable.

Kitano’s polymers are inherently capable of transporting holes as per present claims 2 and 13. Kitano et al. teach that the polymers may also comprise repeating units other than those of formula (1) or (2), and examples of these further repeating units include units which are inherently capable of transporting electrons as per present claims 3 and 14 (e.g. a metal complex

Art Unit: 1786

having 8-quinolinol or its derivative as a ligand as taught in paragraph [0127]). It would have been within the level of ordinary skill of a worker in the art at the time of the invention to make and use various polymer compounds within Kitano's disclosure, and to determine suitable combinations of repeating units selected from those taught in order to provide a functional light emitting device.

9. Miscellaneous:

In line 2 of claim 2, and line 3 of claim 13, "an positive" should read --a positive--.

In line 6 of claim 11, "in the a" should read --in the--.

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday and Wednesday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

/Marie R. Yamnitzky/  
Primary Examiner, Art Unit 1786

MRY  
April 26, 2010